O Type- Open Frame

Size: 3in x 2in x 1.04in

C Type- Enclosed Type

Size: 3.53in x 2.38in x 1.31in

U Type- U Chassis Type

Size:3.53in x 2.38in x 1.36in

DN Type- Din Rail Type

Size: 2.27in x 2.37in x 1.31in

OPTIONS

- Package Type
- Output Voltage
- Class I or Class II

FEATURES

- Wide Input Voltage Range of 85 to 264VAC, 47 to 63Hz
- Built-In Class B EMI Filter
- Adjustable Output Voltage
- 4000VAC Input to Output 2MOPP Insulation
- Protection Type Class I and Class II
- Low Leakage Current Under 75µA
- Operating Altitude of 5000M
- ANSI/AAMI ES60601-1, EN60601-1, and IEC60601-1 3rd Edition Safety Approvals
- CE Marked
- RoHS II and REACH Compliant
- Designed to Meet Efficiency Level VI

APPLICATIONS

- Medical Equipment
- Wireless Network
- Telecom/Datacom
- Industry Control System
- Measurement Equipment
- Semiconductor Equipment

DESCRIPTION

The PSMAD40 series of AC/DC medical power supplies provides 40 watts of output power in a compact 2 x 3 inch footprint. These supplies feature a universal 85-264VAC (120~370 VDC) input, enabling them to be used anywhere in the world. 5V, 7.5V, 9V, 12V, 15V, 24V, 28V, 36V, 48V, and 53V single output voltages are available for this series, all of which have a maximum 10% adjustment range. These supplies also feature a low leakage current of less than 75µA at 264VAC and are designed to withstand 4000VAC, input to output. The PSMAD40 series has an operating temperature range of -40°C to +85°C, and a high efficiency up to 93%. These supplies are also protected against short circuit, over voltage, and over load conditions. The PSMAD40 series has ANSI/AAMI ES60601-1, EN60601-1, and IEC60601-1 medical safety approvals, are CE marked, and meet the conducted and radiated EMI requirements of EN55011, EN55022 and FCC Part 18. The series is designed to meet Energy Level VI and is pending approval. Open frame, U-chassis, enclosed case, and DIN rail mechanical options are available. Class I and Class II protection types are also available.

MODEL SELECTION TABLE

Model Number(1)	Input Voltage Range	Output Voltage	Output Current(2)	Ripple & Noise	No Load Input Power	Output Power	Efficiency
PSMAD40-05S-x	85~264VAC	5VDC	8A	75mVp-p	0.11W	40W	90%
PSMAD40-075S-x		7.5VDC	5.34A	75mVp-p	0.11W	40W	90%
PSMAD40-09S-x		9VDC	4.45A	75mVp-p	0.11W	40W	91%
PSMAD40-12S-x		12VDC	3.34A	75mVp-p	0.11W	40W	92%
PSMAD40-12S1-x		12VDC	3.34A	75mVp-p	0.11W	40W	90%
PSMAD40-15S-x		15VDC	2.67A	75mVp-p	0.11W	40W	92%
PSMAD40-15S1-x		15VDC	2.67A	75mVp-p	0.11W	40W	90%
PSMAD40-24S-x		24VDC	1.67A	75mVp-p	0.11W	40W	92%
PSMAD40-28S-x		28VDC	1.43A	75mVp-p	0.11W	40W	91%
PSMAD40-36S-x		36VDC	1.12A	75mVp-p	0.11W	40W	92%
PSMAD40-48S-x		48VDC	0.84A	150mVp-p	0.11W	40W	93%
PSMAD40-53S-x		53VDC	0.77A	150mVp-p	0.11W	40W	92.5%

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Operating Input Voltage Range	AC Input		85		264	VAC
	DC Input		120		370	VDC
Input Frequency	AC Input		47		63	Hz
Input Current	100VAC and Full Load				1.0	A
	240VAC and Full Load				0.5	
No Load Input Power	230VAC			0.11		W
Leakage Current	264VAC				75	µA
Input Inrush Current	230VAC				60	A
Input Protection	Internal Fuse In Line and Neutral		T3.15A/250VAC			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Initial Set Voltage Accuracy	230VAC and Full Load		-1.0		+1.0	%
Line Regulation	Low Line to High Line at Full Load		-0.2		+0.2	%
Load Regulation	No Load to Full Load	5V Models	-0.7		+0.7	%
		All Others	-0.5		+0.5	
	10% Load to 90% Load	5V Models	-0.6		+0.6	
		All Others	-0.4		+0.4	
Voltage Adjustability	Single Output	5V Models	-20		+10	%
		All Others	-10		+10	
Output Power			See Table			
Output Current			See Table			
Minimum Load				0		%
Ripple & Noise (20MHz bandwidth)	10µF/25V 1206 X7R MLCC	5V, 7.5V, 9V, 12V, 15V Models		75		mVp-p
	1µF/50V 1206 X7R MLCC	24V, 28V, 36V Models		75		
	0.1µF/100V 1206 X7R MLCC	48V, 53V Models		150		
Transient Response	Load step from 50~75% change at 2.5A/µs	Peak Deviation			3	%Vout
		Recovery Time		600		µs
Start Up Time					1000	ms
Rise Time				20		ms
Hold Up Time	115VAC and Full Load			25		ms
Temperature Coefficient			-0.02		+0.02	%/ºC
PROTECTION						
Short Circuit Protection			Continuous, Automatic Recovery			
Over Load Protection	% of Iout; Hiccup Mode			145		%
Over Voltage Protection	% of Vout(nom); Latch Mode		125		140	%
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	Natural Convection with Derating		-40		+85	ºC
Storage Temperature			-40		+85	ºC
Operating Altitude					5000	M
Relative Humidity	Non-Condensing		5		95	%RH
Shock			IEC60068-2-27			
Vibration			IEC60068-2-6			
MTBF	MIL-HDBK-217F, Full Load		3,010,000 hrs			
GENERAL SPECIFCATIONS						
Efficiency			See Table			
Switching Frequency	230VAC	5V Models		70		kHz
		All Others		120		
Isolation Voltage	1 minute (2MOPP insulation)	Input to Output	4000			VAC
		Input (Output) to F.G)	2500			
Isolation Resistance	500VDC		0.1			GΩ

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

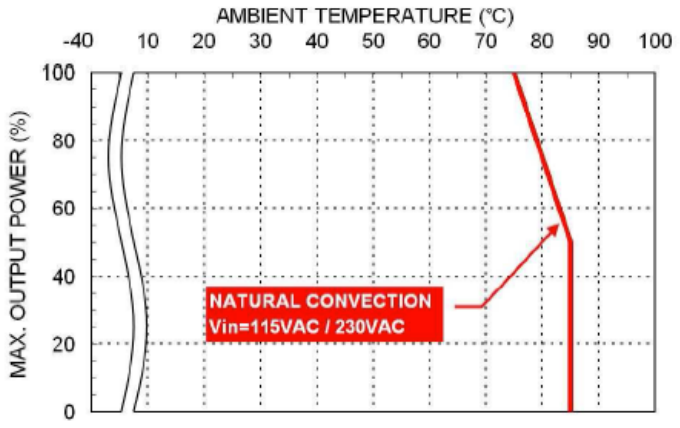
SPECIFICATION	TEST CONDITIONS				Min	Typ	Max	Unit
PHYSICAL SPECIFICATIONS								
Weight	O Type: Open Frame Models					4.02oz (114g)		
	C Type: Enclosed Models					5.96oz (169g)		
	U Type: U Chassis Models					5.43oz (154g)		
	DN Type: Din Rail Models					6.70oz (190g)		
Dimensions (L x W x H)	O Type: Open Frame Models					3in x 2in x 1.04in (76.2mm x 50.8mm x 26.5mm)		
	C Type and U Type: Enclosed and U Chassis Models					3.53in x 2.38in x 1.31in (89.7mm x 60.5mm x 33.3mm)		
	DN Type: Din Rail Models					3.67in x 2.37in x 1.31in (93mm x 60.4mm x 33.3mm)		
SAFETY & EMC CHARACTERISTICS								
Safety Approvals	ANSI/AAMI ES60601-1 EN60601-1 IEC60601-1							
EMI	EN55011, EN55022 and FCC Part 18					Conducted		Class B
						Radiated		Class B
Harmonic Currents	EN61000-3-2	Full Load						Class A
Voltage Flicker	EN61000-3-3							
ESD	EN61000-4-2	Air ±8kV Contact ±6kV						Perf. Criteria A
Radiated Immunity	EN61000-4-3	20 V/m						Perf. Criteria A
Fast Transient	EN61000-4-4	±2kV						Perf. Criteria A
Surge	EN61000-4-5	DM ±1kV CM ±2kV						Perf. Criteria A
Conducted Immunity	EN61000-4-6	20 Vr.m.s						Perf. Criteria A
Power Frequency Magnetic Field	EN61000-4-8	10 A/m						Perf Criteria A
Dip and Interruptions	EN60601-1-2 EN61000-4-11	230VAC 50Hz	30%	500mS				Perf. Criteria A
			60%	100mS				Perf. Criteria A
			>95%	10mS				Perf. Criteria A
			>95%	5000mS				Perf. Criteria B
		100VAC 50Hz	30%	500mS				Perf. Criteria A
			60%	100mS				Perf. Criteria B
			>95%	10mS				Perf. Criteria A
			>95%	5000mS				Perf. Criteria B

NOTES

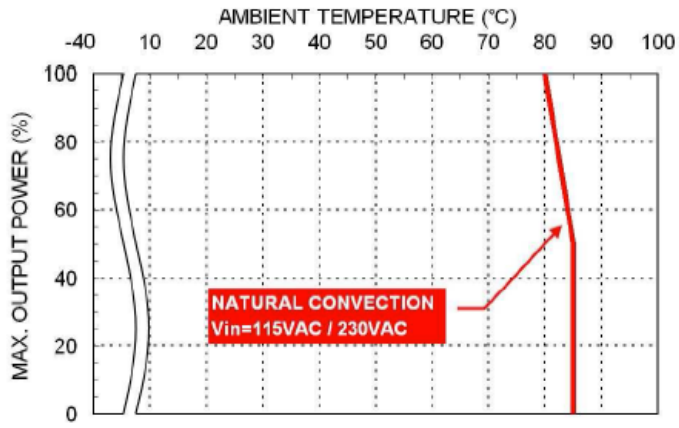
(1) The “x” in the model number indicates the optional package type. “x” can either be “O” for Open Frame Type, “C” for Enclosed Type, “U” for U-Chassis Type, or “DN” for Din Rail Type.
(2) Output Current: Convection Cooled 73ºC Ta

DERATING CURVES

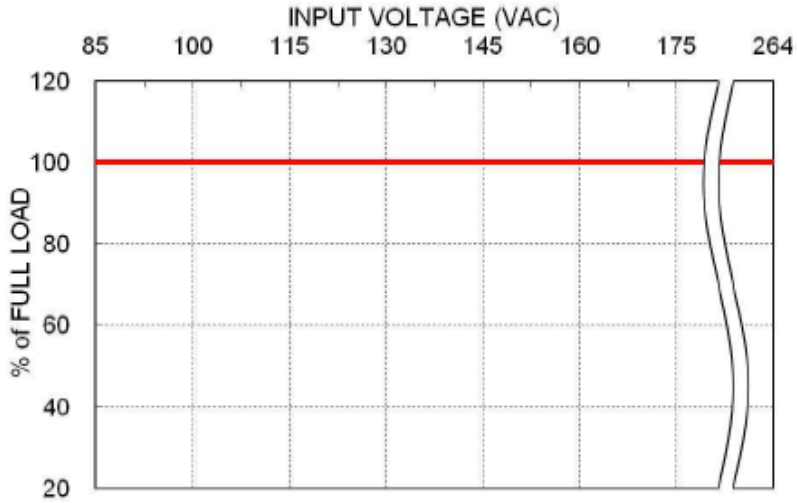
Derating Curve vs. Ambient Temperature
5V, 7.5V, 9V 12S1V 15S1, 28V Models



Derating Curve vs. Ambient Temperature
12V, 15V, 24V, 36V, 48V, 53V Models

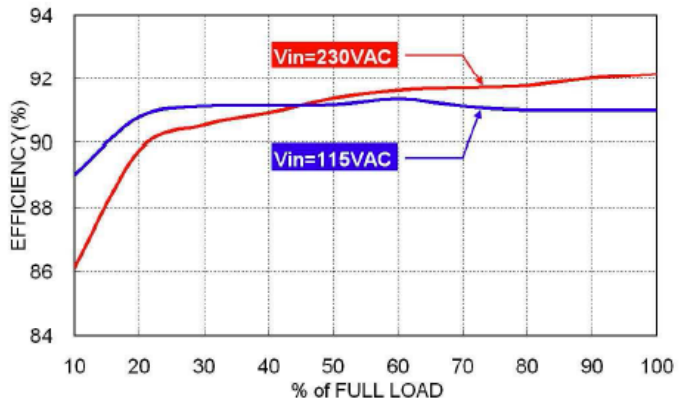


Derating Curve vs. Input Voltage

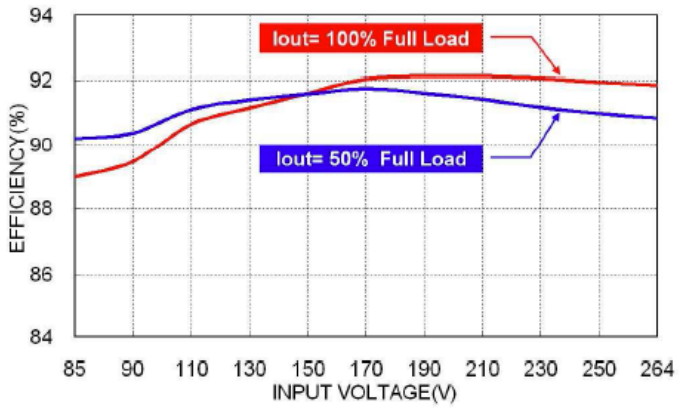


EFFICIENCY GRAPHS

Efficiency vs. Output Load
PSMAD40-24S-U

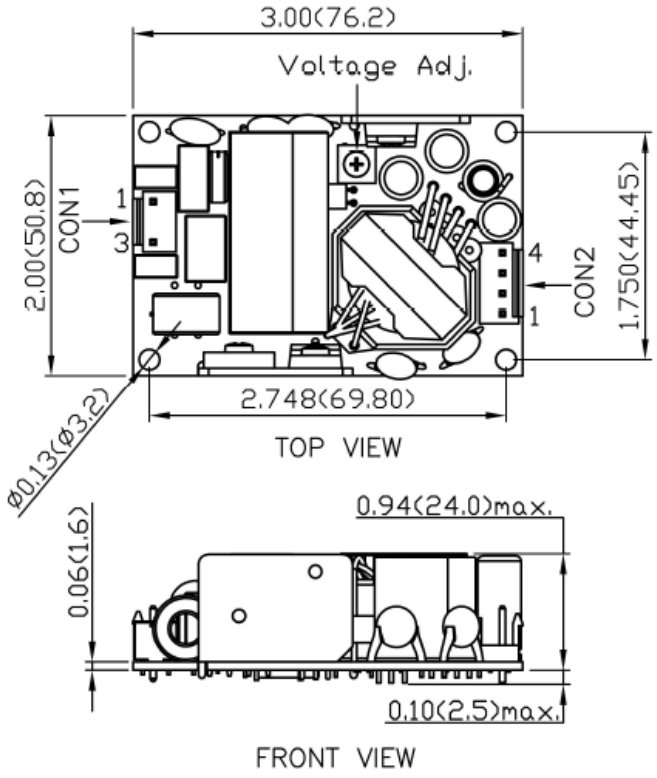


Efficiency vs. Input Voltage
PSMAD40-24S-U

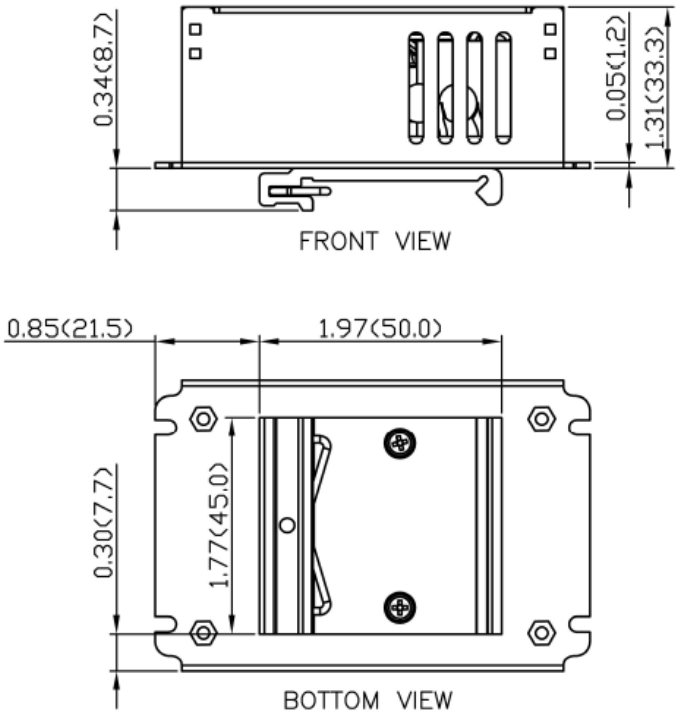


MECHANICAL DRAWINGS

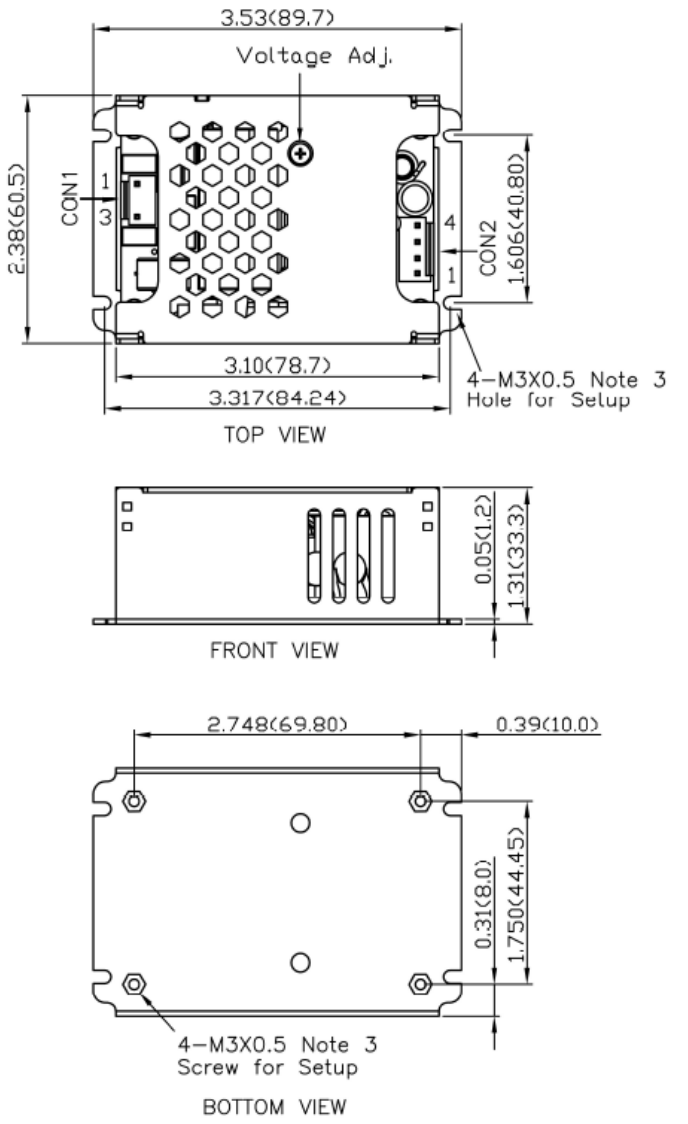
O Type- Open Frame



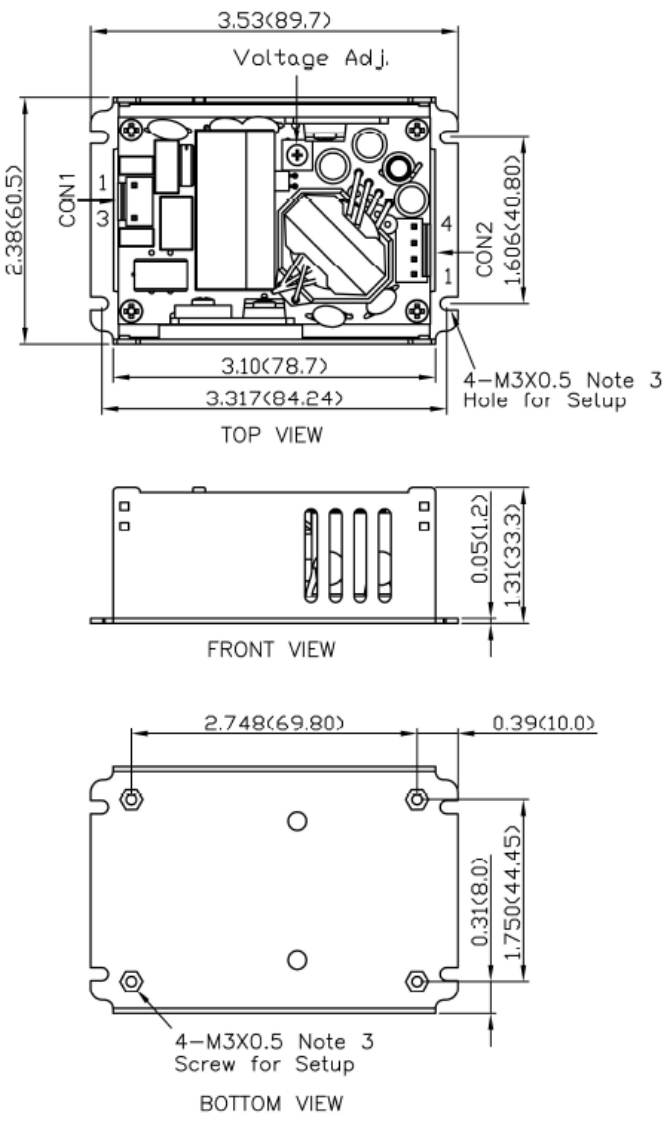
DN Type- Din Rail Type



C Type- Enclosed Type



U Type- U Chassis Type



1. All dimensions in inch (mm)
2. Tolerance: x.xx±0.02 (x.x±0.5) x.xxx±0.01 (x.xx±0.25)
3. M3x0.5 screw locked torque MAX 5Kgf.cm/0.49N.m

CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with
JST housing: **VHR-3N**
JST crimp terminals: **SVH-21T-P1.1**

Mounting holes marked with ⏚ must be connected to safety earth for CLASS I application

CON2-Output Connector

Pin 1, 2	-Vout
Pin 3, 4	+Vout

Mates with
JST housing: **VHR-4N**
JST crimp terminals: **SVH-21T-P1.1**

MODEL NUMBER SETUP

PSMAD	40	-	15	S	-	E	□
Series Name	Output Power		Output Voltage	Output Quantity		Package Type	Protection Type
			05: 5VDC **075:** 7.5VDC **09:** 9VDC **12:** 12VDC **15:** 15VDC **24:** 24VDC **28:** 28VDC **36:** 36VDC **48:** 48VDC **53:** 53VDC	**S:** Single		**O:** Open Type **U:** U Chassis Type **C:** Enclosed Type **DN:** Din Rain Type	**No Suffix:** CLASS I **B:** CLASS II

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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